

# Pedestrian Safety

## Strategic Highway Safety Plan – Emphasis Area 7

2016 Winter Workshop



# Delaware vs. the Nation

Pedestrian fatalities per 100,000 population	2007	2008	2009	2010	2011	2012	2013
Delaware	1.85	2.41	1.69	2.45*	1.98	2.94*	2.70*
District of Columbia	3.23*	1.52	2.33	2.15	1.29	1.11	1.39
Kentucky	1.04	1.57	0.95	1.40	1.14	1.12	1.25
Maryland	2.06	2.06	1.98	1.75	1.75	1.63	1.82
North Carolina	1.89	1.73	1.56	1.77	1.66	2.02	1.76
Virginia	1.14	0.98	0.93	0.91	0.90	1.20	0.91
West Virginia	1.49	0.72	1.15	0.70	1.08	1.67	1.51
Max. State Rate/Year	*	2.67 (FL)	2.51 (FL)	*	2.57 (FL)	*	*
Min. State Rate/Year	0.38 (WY)	0.28 (NE)	0.37 (WY)	0.44 (NE)	0.38 (NH)	0.24 (SD)	0.14 (ND)

*States that make up Mid-Atlantic Region*

# Pedestrian Questionnaire

## Delaware Department of Transportation Pedestrian Survey

The Delaware Department of Transportation is conducting a survey of State Employees to learn about their opinions and practices. Your answers to the questions are voluntary and anonymous and will help us to make Delaware a safer place for pedestrians.

1. Do you recall any advertisement campaigns that occurred last year about pedestrian safety?

☐ Yes ☐ No

If YES, where and what were they?

2. What influences your choice of whether or not to use a crosswalk? (Check all that apply)

<input type="checkbox"/> Distance to a crosswalk or pedestrian bridge.	<input type="checkbox"/> No signaled crosswalk or pedestrian bridge is available.	<input type="checkbox"/> It's not against the law.
<input type="checkbox"/> There is a divider in the center so I can stop halfway across if necessary	<input type="checkbox"/> There are breaks in traffic to let me cross.	<input type="checkbox"/> Drivers will see me and let me cross.
<input type="checkbox"/> I do it all the time and never had a problem	<input type="checkbox"/> Other	

3. If you are not near a corner but are ready to cross the road, would you walk to a crosswalk?

☐ Yes ☐ No

If NO, why?

4. Do you believe the motor vehicle laws concerning pedestrians are fair? If not, how should they be changed?

☐ Yes ☐ No

If NO, how should they be changed?

5. How far out of your way would you be willing to walk to get to a safer place to cross a roadway? (Check all that apply)

☐ 50 feet ☐ 100 feet ☐ 300 feet (length of a football field)  
☐ I do not bother with signaled crosswalks or pedestrian bridges if I think I can safely cross without them.

Does it depend on if you are in a hurry?

☐ Yes ☐ No

6. How far would you walk to cross a high speed multi-lane divided roadway in order to get to the other side (e.g. US 13)? (Check all that apply)

☐ 50 feet ☐ 100 feet ☐ 300 feet (length of a football field)  
☐ I do not bother with signaled crosswalks or pedestrian bridges if I think I can safely cross without them.

7. What do you think categorizes a "safe pedestrian" from an engineering, education, or enforcement perspective?

Thank you for participating in our survey.

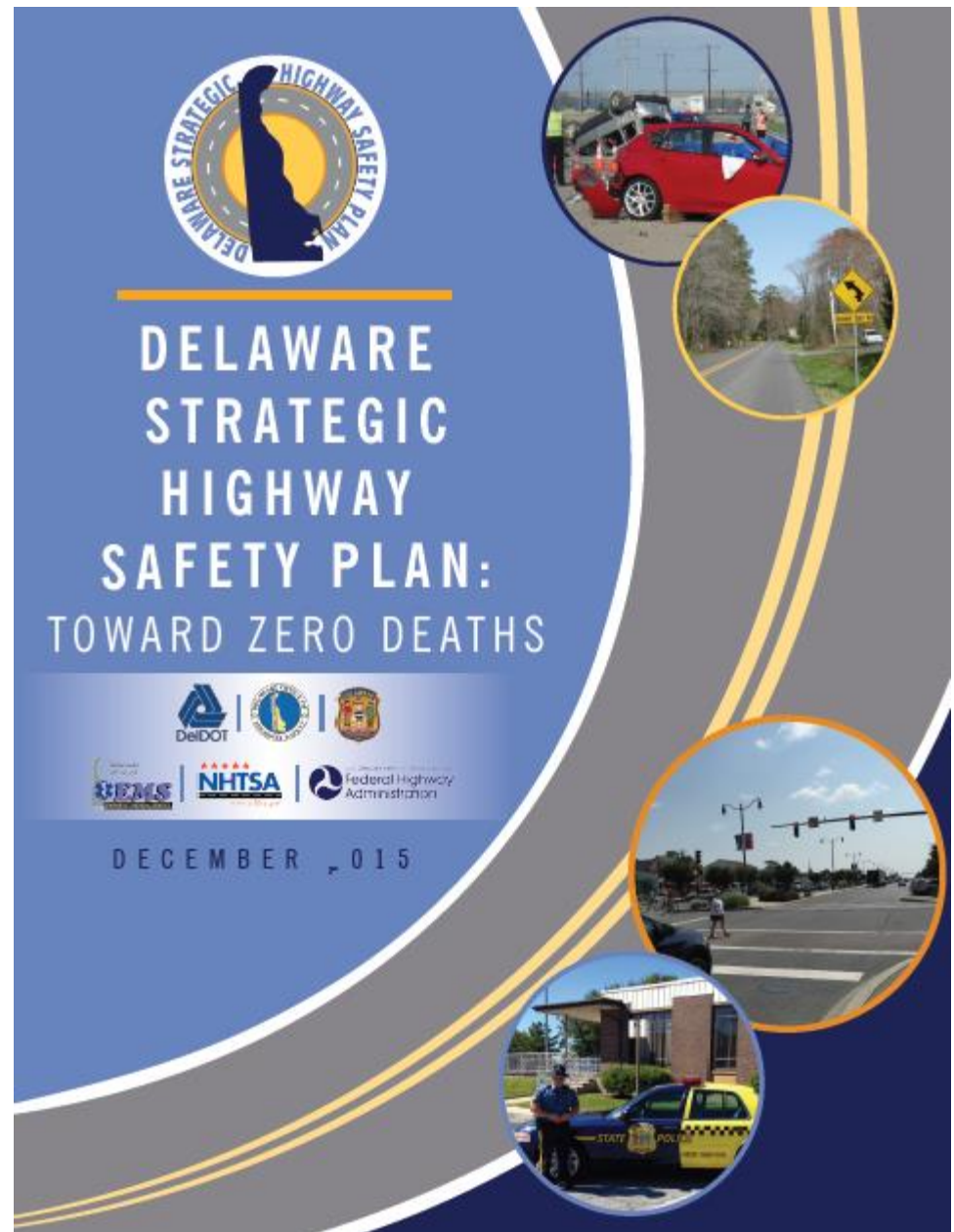
Purpose: Learn your opinions and practices pertaining Pedestrian Safety....Are we missing something?

## Mission of the SHSP:

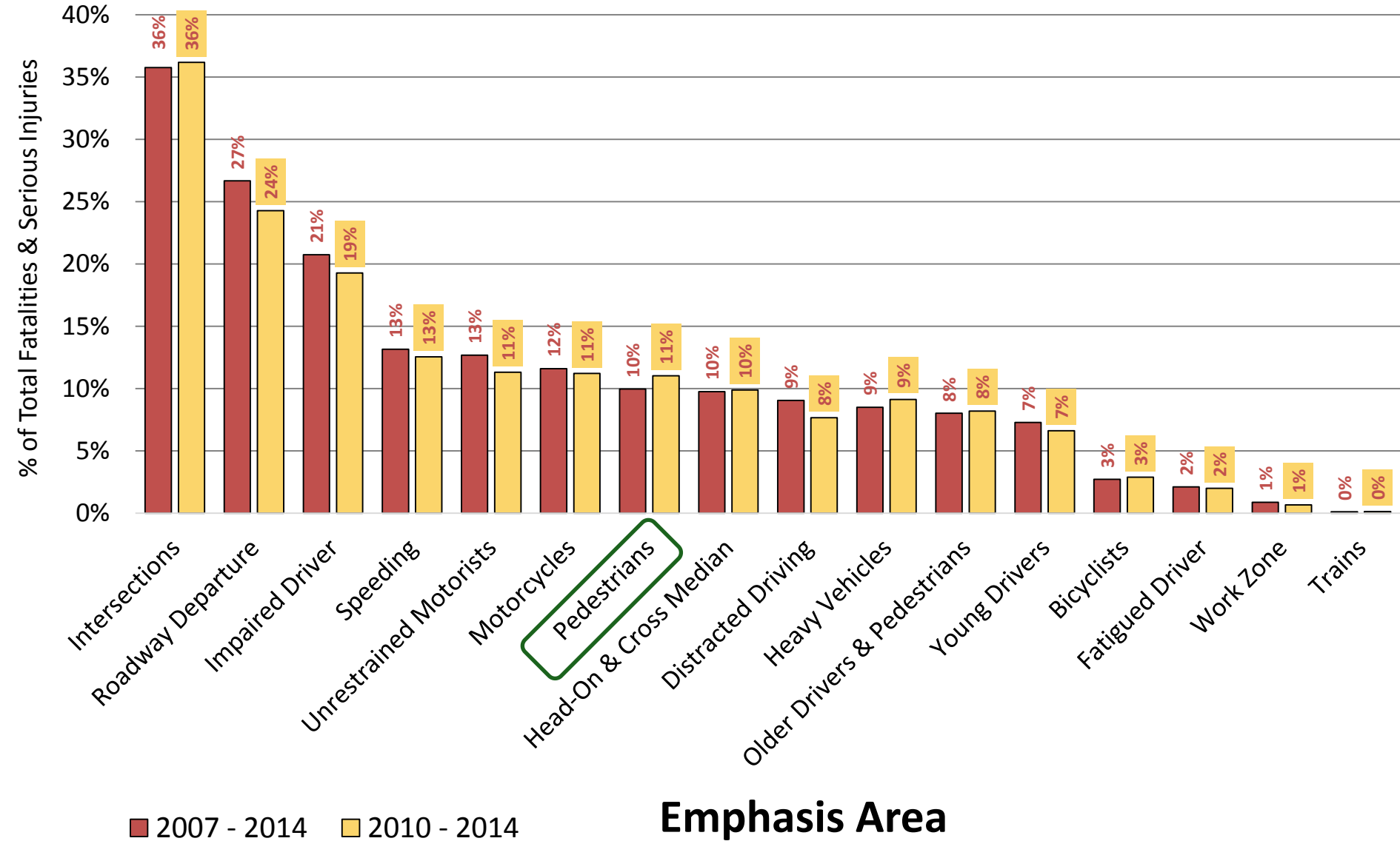
Toward Zero Deaths aims to eliminate fatalities and serious injuries on Delaware's roadways through a multi-agency approach that utilizes education, enforcement, engineering, and emergency medical service strategies.

## Goal of the SHSP:

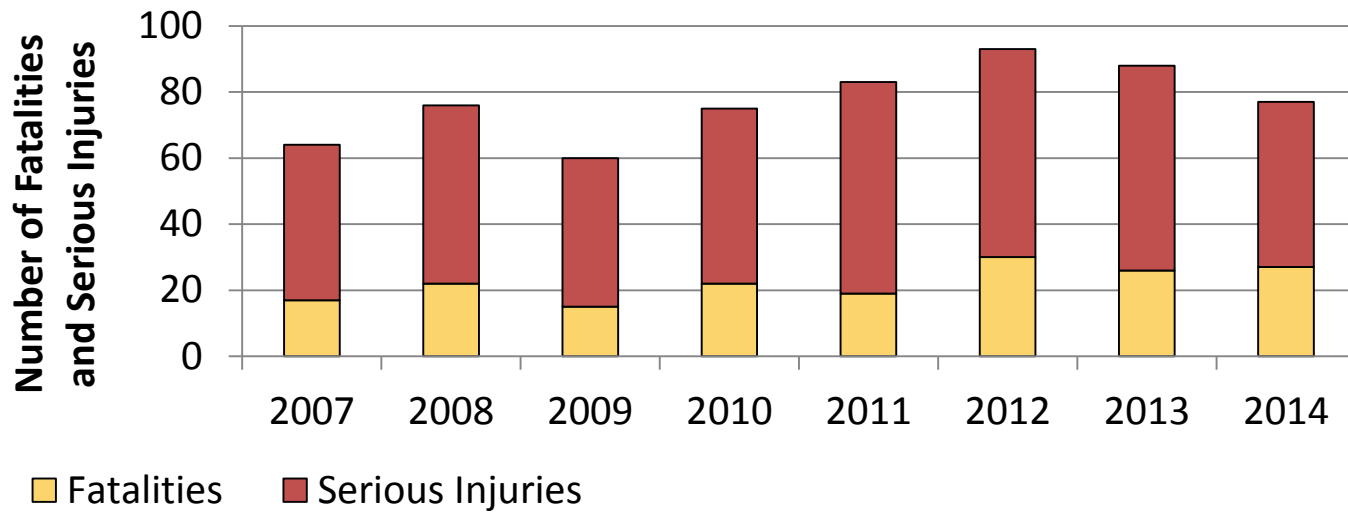
Toward Zero Deaths is to achieve a reduction of at least 3 fatalities and 15 serious injuries annually and continue to reduce the total number of fatalities and serious injuries to achieve at least a 50 percent reduction by 2035.



# Emphasis Areas Ranked by % of Fatalities & Serious Injuries



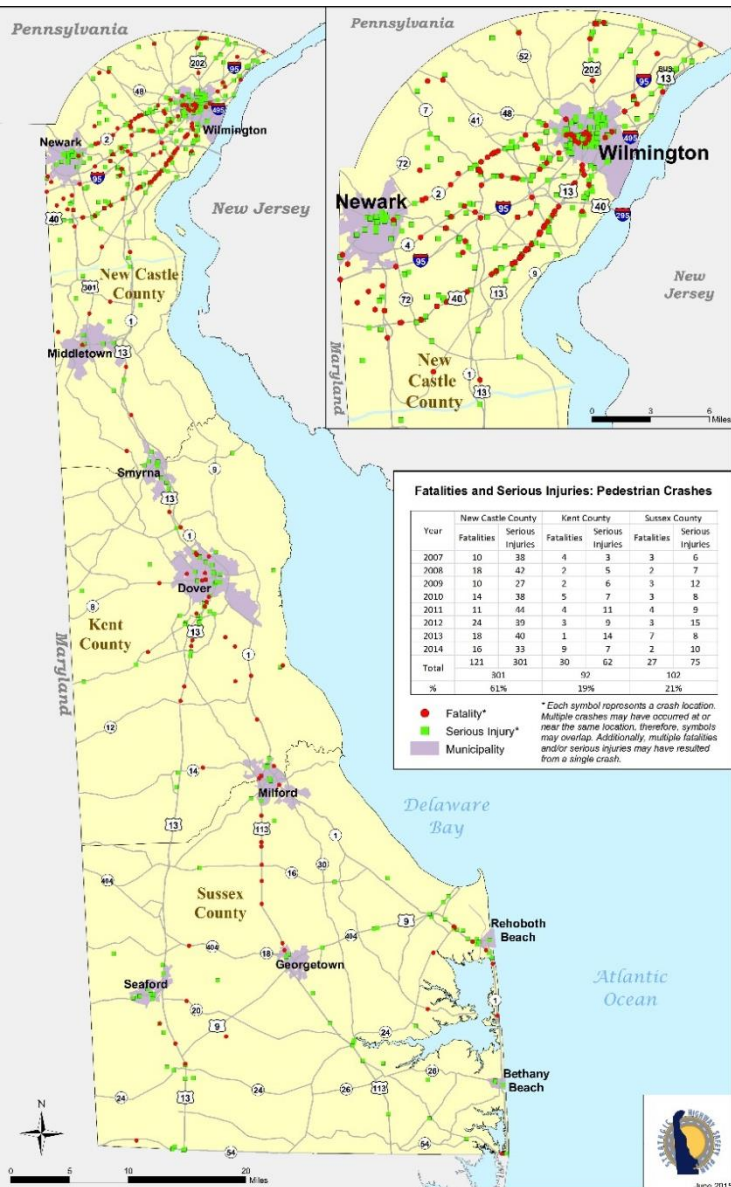
# Pedestrians



INJURY TYPE	Pedestrians								
	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
% of total fatalities	14%	18%	13%	21%	18%	26%	26%	22%	20%
% of total fatalities & serious injuries	8%	9%	8%	9%	11%	13%	12%	8%	10%



# Pedestrians – Where?



## Fatalities and Serious Injuries: Pedestrian Crashes

Year	New Castle County		Kent County		Sussex County	
	Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries
2007	10	38	4	3	3	6
2008	18	42	2	5	2	7
2009	10	27	2	6	3	12
2010	14	38	5	7	3	8
2011	11	44	4	11	4	9
2012	24	39	3	9	3	15
2013	18	40	1	14	7	8
2014	16	33	9	7	2	10
Total	121	301	30	62	27	75
	301		92		102	
%	61%		19%		21%	

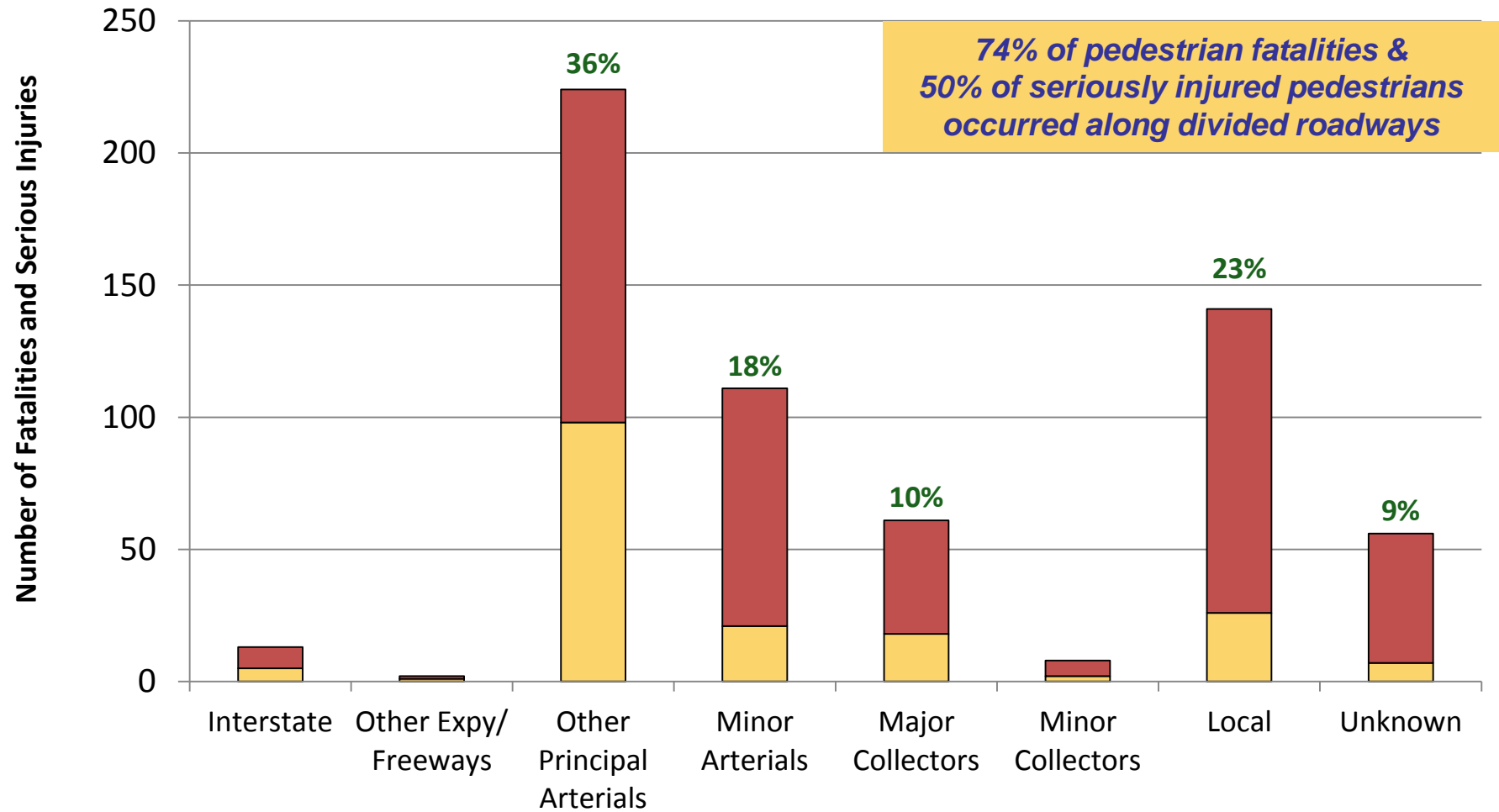
- Fatality\*
- Serious Injury\*
- Municipality

\* Each symbol represents a crash location. Multiple crashes may have occurred at or near the same location, therefore, symbols may overlap. Additionally, multiple fatalities and/or serious injuries may have resulted from a single crash.

### Significant clusters of pedestrian fatalities:

- US 40/US 13 in NCC
- SR 2
- City of Wilmington
- US 13 in Dover area
- SR 1 in Lewes/Rehoboth Beach area
- US 113 between Milford and Georgetown

# Pedestrians – Where?

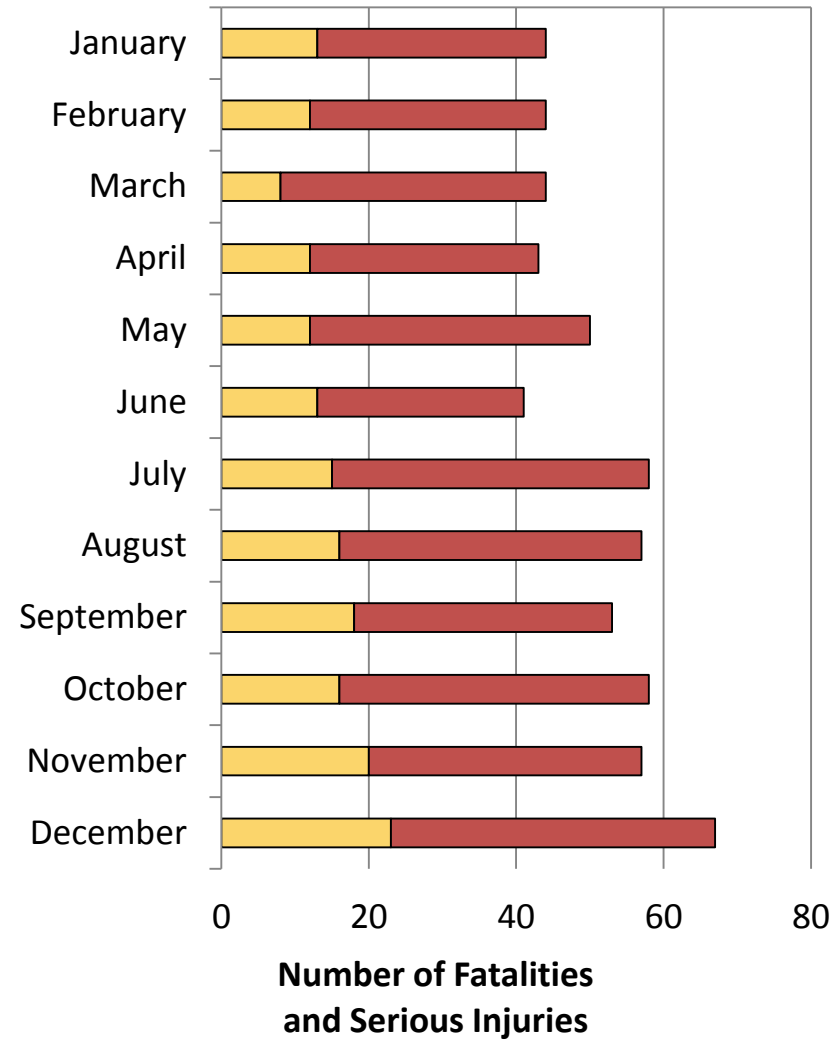
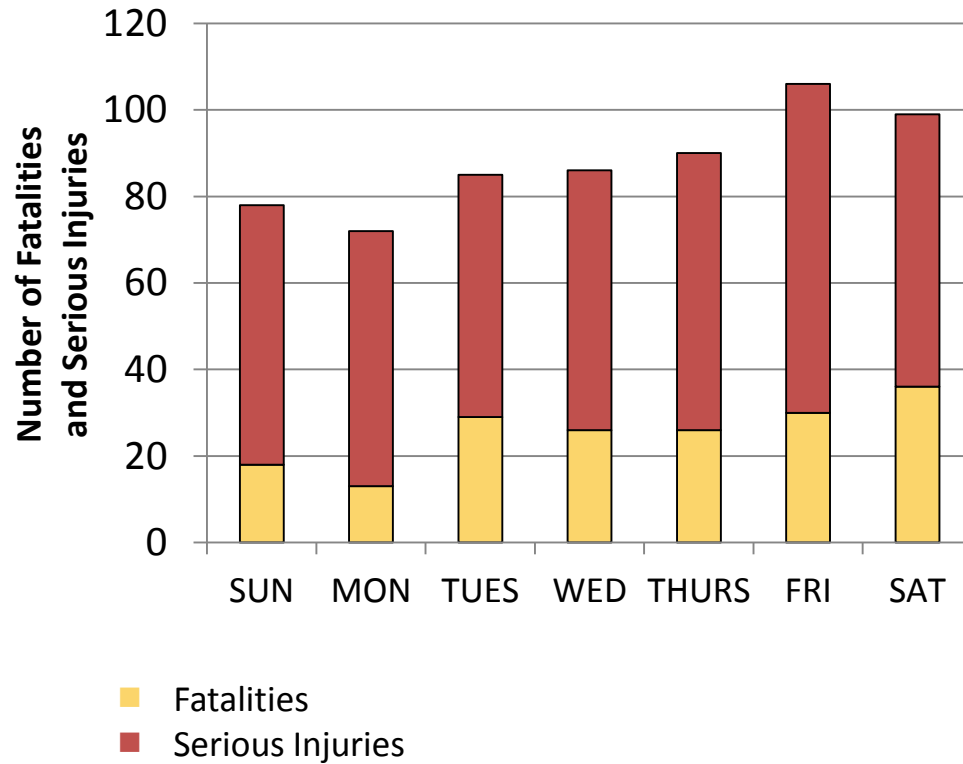


Fatalities  
Serious Injuries

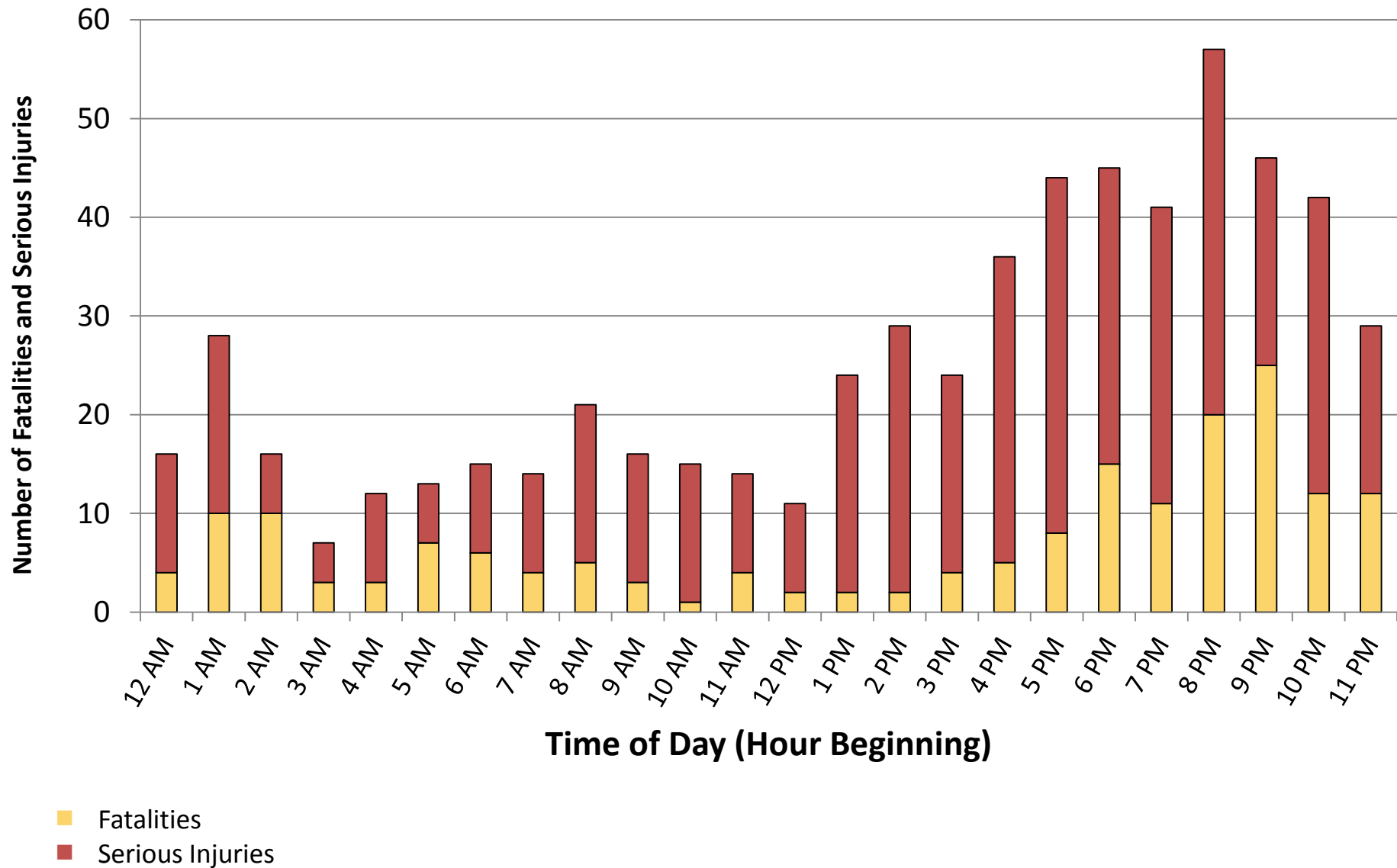
% of Total Pedestrian Fatalities & Serious Injuries



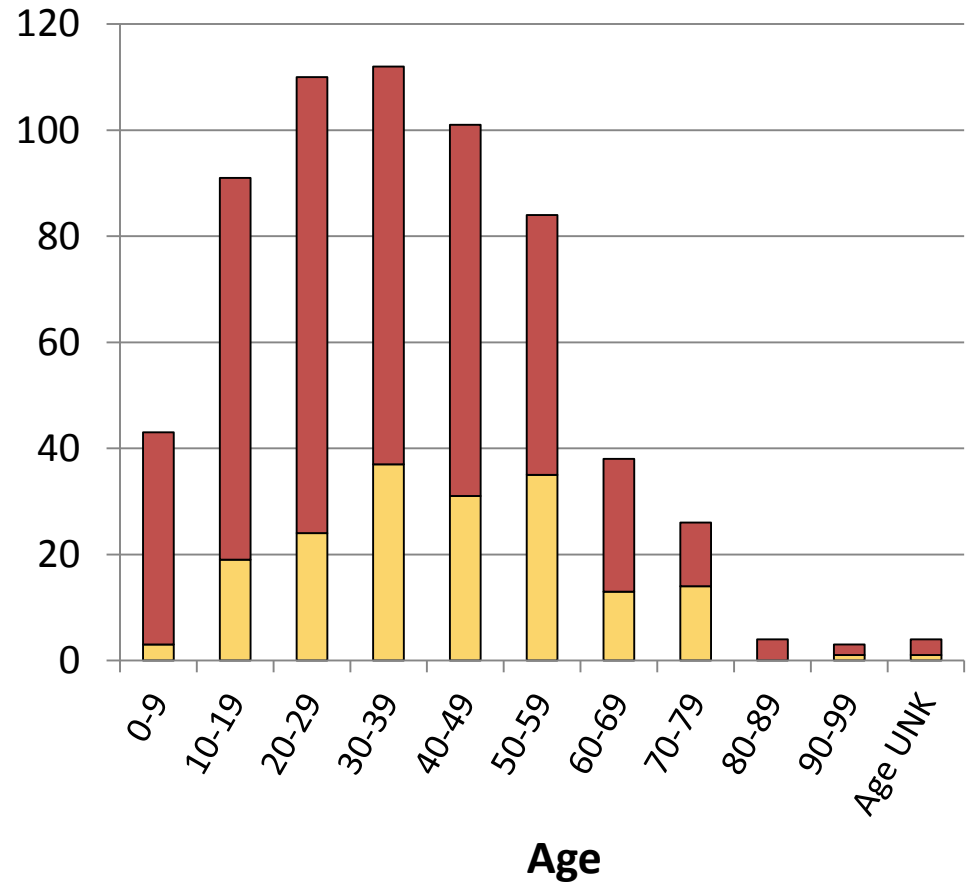
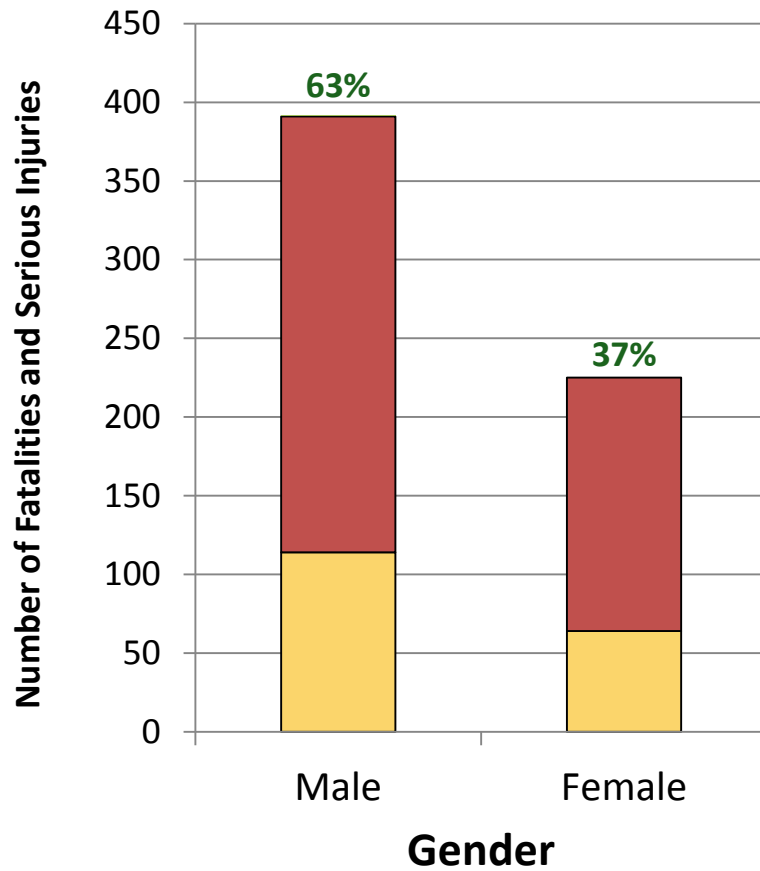
# Pedestrians – When?



# Pedestrians – When?



# Pedestrians – Who?



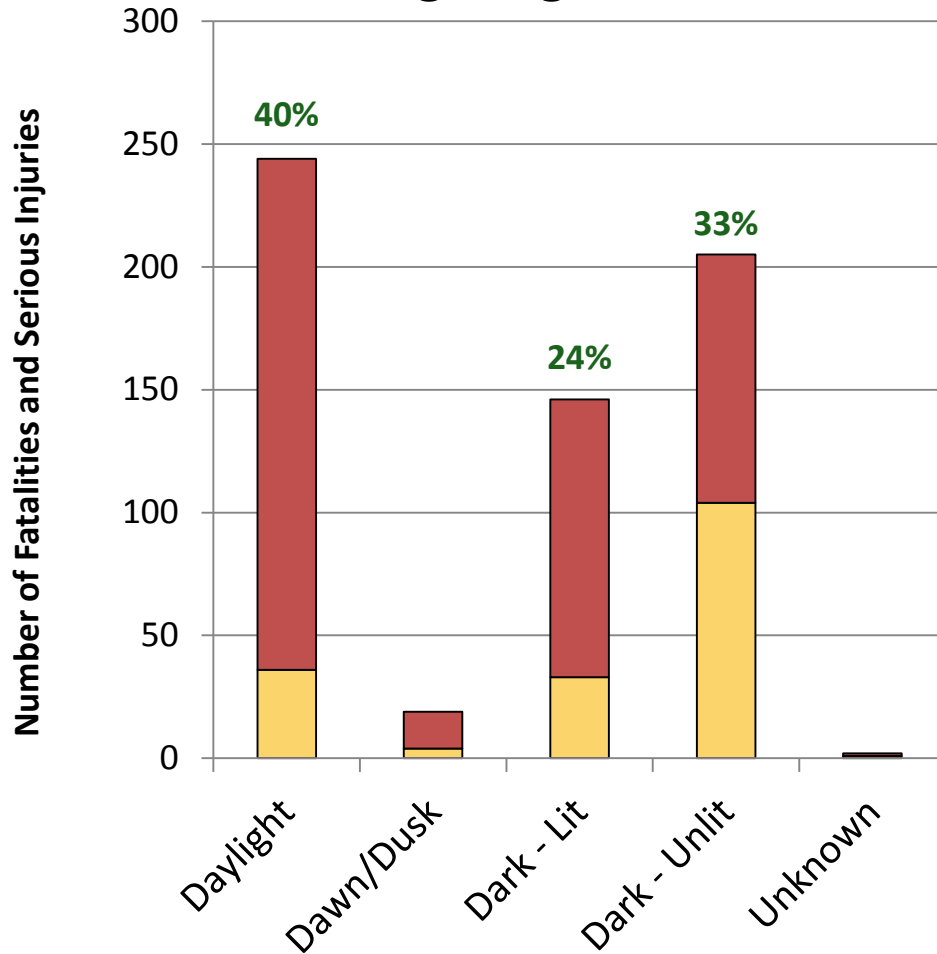
*36% of pedestrian fatalities &  
17% of seriously injured pedestrians  
were impaired*

■ Fatalities  
■ Serious Injuries

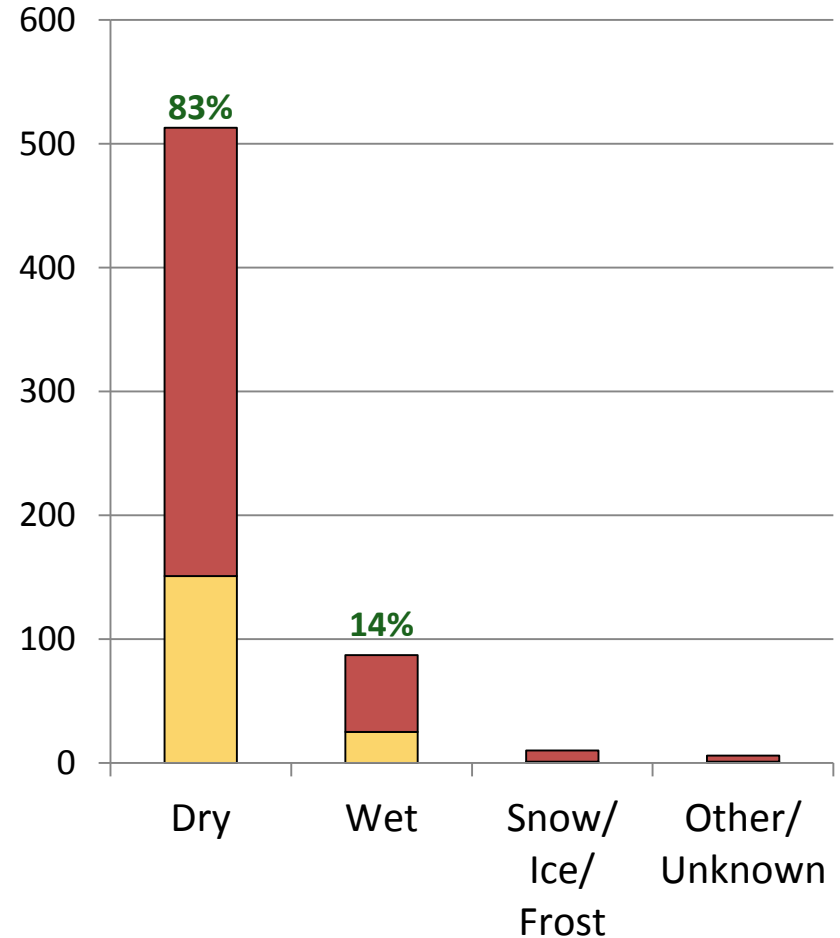
% of Total Pedestrian Fatalities & Serious Injuries

# Pedestrians – Crash Conditions

## Lighting Condition



## Surface Condition

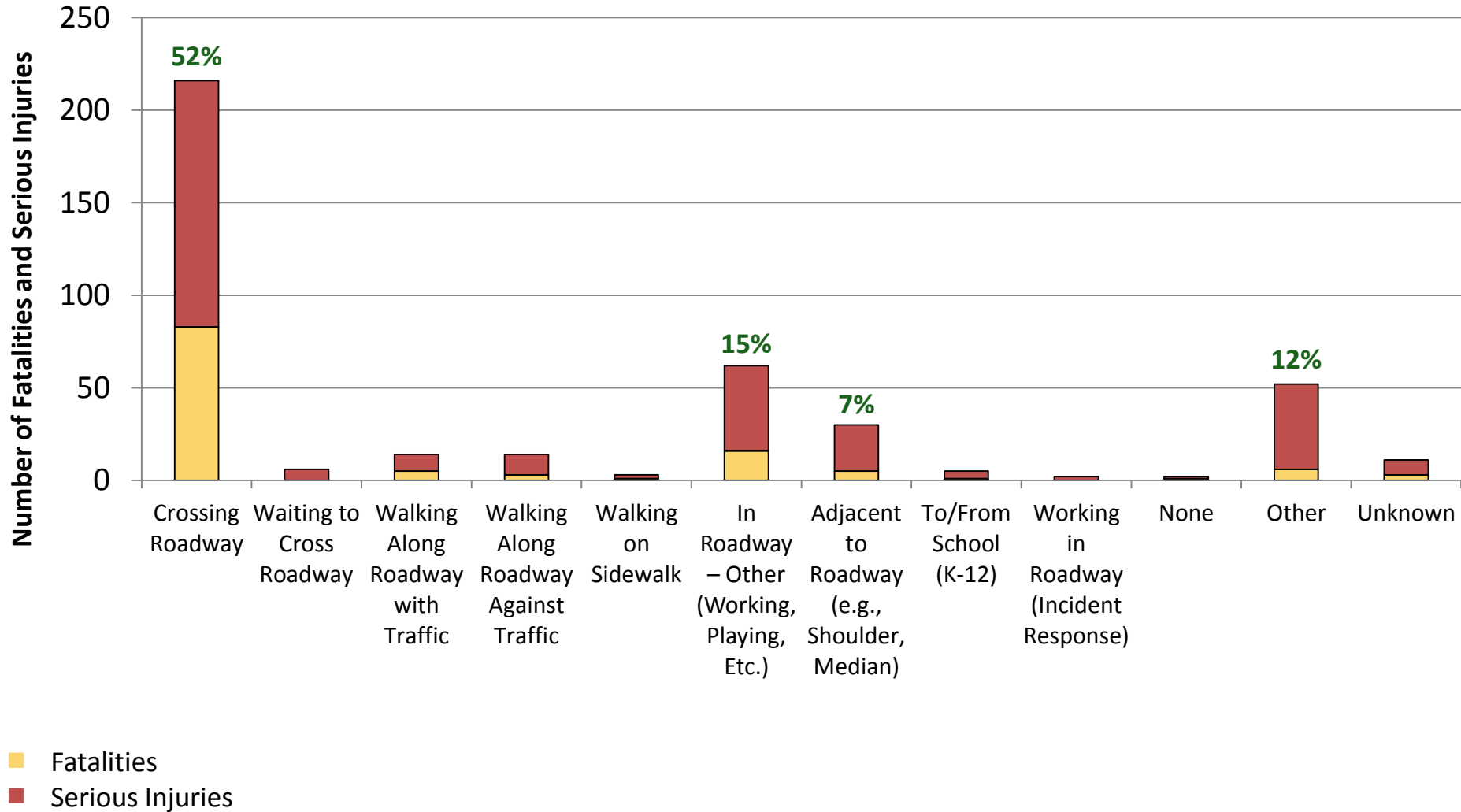


Fatalities  
Serious Injuries

% of Total Pedestrian Fatalities & Serious Injuries

# Pedestrian Action Prior to Crash

## 2010 – 2014 Pedestrian Crashes\*



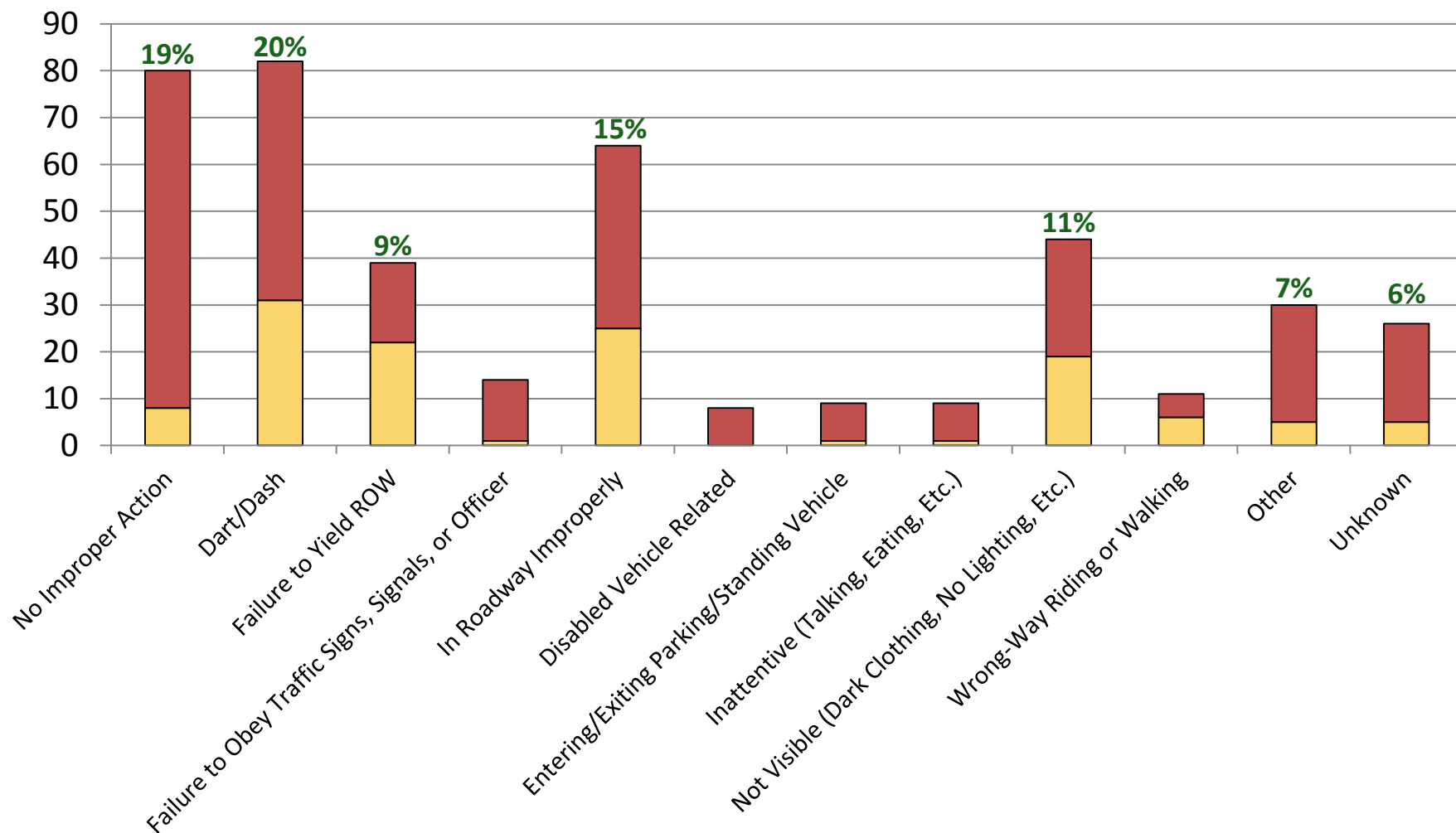
% of Total Pedestrian Fatalities & Serious Injuries

\* Data not available prior to 2010

# Pedestrian Action at Time of Crash

## 2010 – 2014 Pedestrian Crashes\*

Number of Fatalities and Serious Injuries



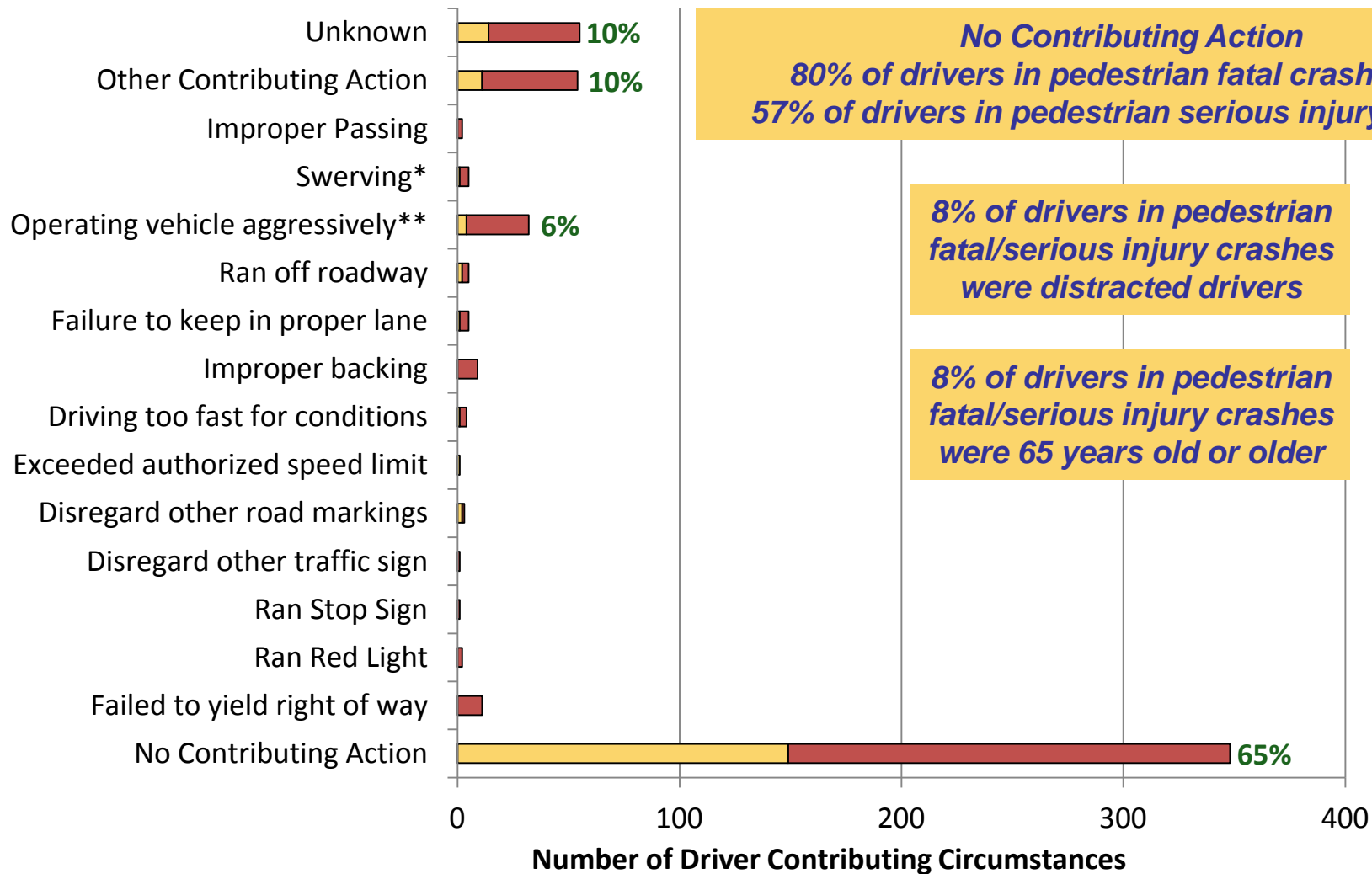
■ Fatalities  
■ Serious Injuries

% of Total Pedestrian Fatalities & Serious Injuries

\* Data not available prior to 2010



# Driver Contributing Circumstances



■ Fatalities  
■ Serious Injuries

\* Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.  
 \*\* Operating vehicle in erratic, reckless, careless, negligent or aggressive manner

**% of Total Driver Contributing Circumstances**

# Strategies and Programs to Improve Pedestrian Safety

	What did we plan to do? (2010 SHSP Strategies)	What did we do?
Education	<b>Conduct media outreach</b> <ul style="list-style-type: none"> <li>✓ Emphasize pedestrian safety, vehicle-pedestrian right-of-way, pedestrian responsibilities and the dangers of walking while impaired</li> <li>✓ Participate in health and safety fairs</li> <li>✓ Develop consistent messages to the public</li> <li>✓ Increase high visibility education, especially among high-risk groups</li> <li>✓ Increase risk perception by publicizing information about enforcement initiatives</li> <li>✓ Use billboard, radio, and TV advertisements</li> <li>✓ Encourage drivers to slow down and look for pedestrians, particularly in commercial and residential corridors</li> <li>✓ Educate pedestrians on the dangers of walking along or crossing roadways while under the influence of alcohol and/or drugs</li> </ul>	<b>Walk Smart</b> <ul style="list-style-type: none"> <li>• Zombie/Walking Dead campaign</li> <li>• Happy Crab campaign</li> </ul> <b>Summer Wave Pedestrian outreach</b> <i>(DE OHS partnership with Ocean City, MD)</i> <b>Live pedestrian safety demonstrations (NCC &amp; SC)</b> <b>Safe Routes to School Program</b>
	<b>Implement driver's education improvements to emphasize vehicle-pedestrian right-of-way and laws</b>	

# Strategies and Programs to Improve Pedestrian Safety

	What did we plan to do? (2010 SHSP Strategies)	What did we do?
Enforcement	✓ Conduct high visibility enforcement campaigns to ensure pedestrians and drivers alike are obeying pedestrian safety laws	Targeted enforcement campaigns <ul style="list-style-type: none"> <li>• SR 2</li> <li>• US 13</li> <li>• SR 1</li> </ul>
	× Evaluate the use of automated speed enforcement in school zones	
	✓ Increased penalties for drivers convicted of inattentive or careless driving resulting in injury to a “vulnerable user”	Passed Senate Bill 269 (August 2010)

# Strategies and Programs to Improve Pedestrian Safety

	What did we plan to do? (2010 SHSP Strategies)	What did we do?
Engineering	<p><b>System and policy initiatives</b></p> <ul style="list-style-type: none"> <li>✓ Consider pedestrian accommodations early in the planning process for all new projects &amp; review crossings at existing locations</li> <li>✓ Provide consistent pedestrian crossing design</li> <li>✓ Improve design to focus on sight distance to crosswalks and warning signs</li> <li>✓ Provide adequate crossing times for older pedestrians</li> <li>✓ Improve maintenance of pedestrian accommodations</li> <li>✗ Consider revising DelDOT's street lighting guidance to include guidance for installing street lighting to address pedestrian concerns</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented Complete Streets policy</li> <li>• Pedestrian accommodations considered in all DelDOT projects</li> <li>• Safe Routes to School Program</li> <li>• Sidewalk and Multi-Use Path Maintenance Policy (effective July 17, 2013)</li> <li>• Pedestrian/Bicycle Working Group</li> <li>• Updated Traffic Calming Design Manual (2012)</li> <li>• Governor's Pedestrian Council</li> </ul>
	<p><b>Spot or target location improvements</b></p> <ul style="list-style-type: none"> <li>✓ Eliminate conflict between pedestrians and left-turning vehicles by installing protected-only left-turn phasing</li> <li>✓ Where appropriate, install traffic calming devices</li> <li>✓ Install raised crosswalks</li> <li>✓ Install pedestrian-hybrid signals</li> <li>✓ Provide leading pedestrian phases to enhance visibility</li> <li>✓ Install curb extensions to improve visibility and reduce pedestrian crossing time</li> <li>✓ Perform pedestrian safety audits for roadways and intersections</li> <li>✓ Install street lighting at locations with a high number of nighttime pedestrian crashes</li> </ul>	<p><b>Pedestrian Safety Audits along High-Risk Corridors</b></p> <ul style="list-style-type: none"> <li>• US 13/US 40</li> <li>• SR 2</li> <li>• US 13</li> </ul> <p><b>Pedestrian Signalization-Related Improvements</b></p> <ul style="list-style-type: none"> <li>• Accessible pedestrian signals</li> <li>• Pedestrian Hybrid Beacons (HAWK)</li> <li>• Pushbutton Activated Warning Beacons</li> <li>• Lead pedestrian intervals</li> <li>• Rectangular Rapid Flashing Beacons (RRFB) (planned)</li> </ul> <p><b>Traffic calming through TE/TAP projects and the Traffic Calming Program</b></p>

# Strategies to Improve Pedestrian Safety

- Continue a multi-agency approach to address pedestrian safety issues
- Develop and distribute consistent public information messages to increase public awareness and laws on pedestrian safety
- Conduct high-visibility enforcement campaigns targeting both pedestrians and drivers to promote pedestrian safety
- Improve infrastructure to reduce pedestrian exposure
- Research and implement the latest pedestrian safety “best practice” treatments and devices
- Conduct pedestrian safety audits at high-crash locations
- Install effective countermeasures to improve pedestrian safety at high crash locations
- Perform before/after studies to evaluate and identify the most effective pedestrian safety treatments
- Ensure drivers education instructors emphasize vehicle-pedestrian laws in their lesson plans
- Support legislative action to strengthen pedestrian safety laws and enforcement efforts
- Develop policies and/or guidelines to support pedestrian safety measures

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